Technical Assessment of Current Interconnection Experience

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Objectives

- Obtain specific information on recent user, manufacturer and utility experience with grid interconnection.
- Benchmark current specific applications of interconnection technologies and experience
- Provide guidance regarding technical issues encountered during interconnection process

Approach

Conduct interviews with utilities, DER manufacturers, system integrators and electricity customers

Analyze data from interviews to determine major technical, business, and regulatory trends currently being encountered in the interconnection process

Develop recommendations for improving the interconnection process

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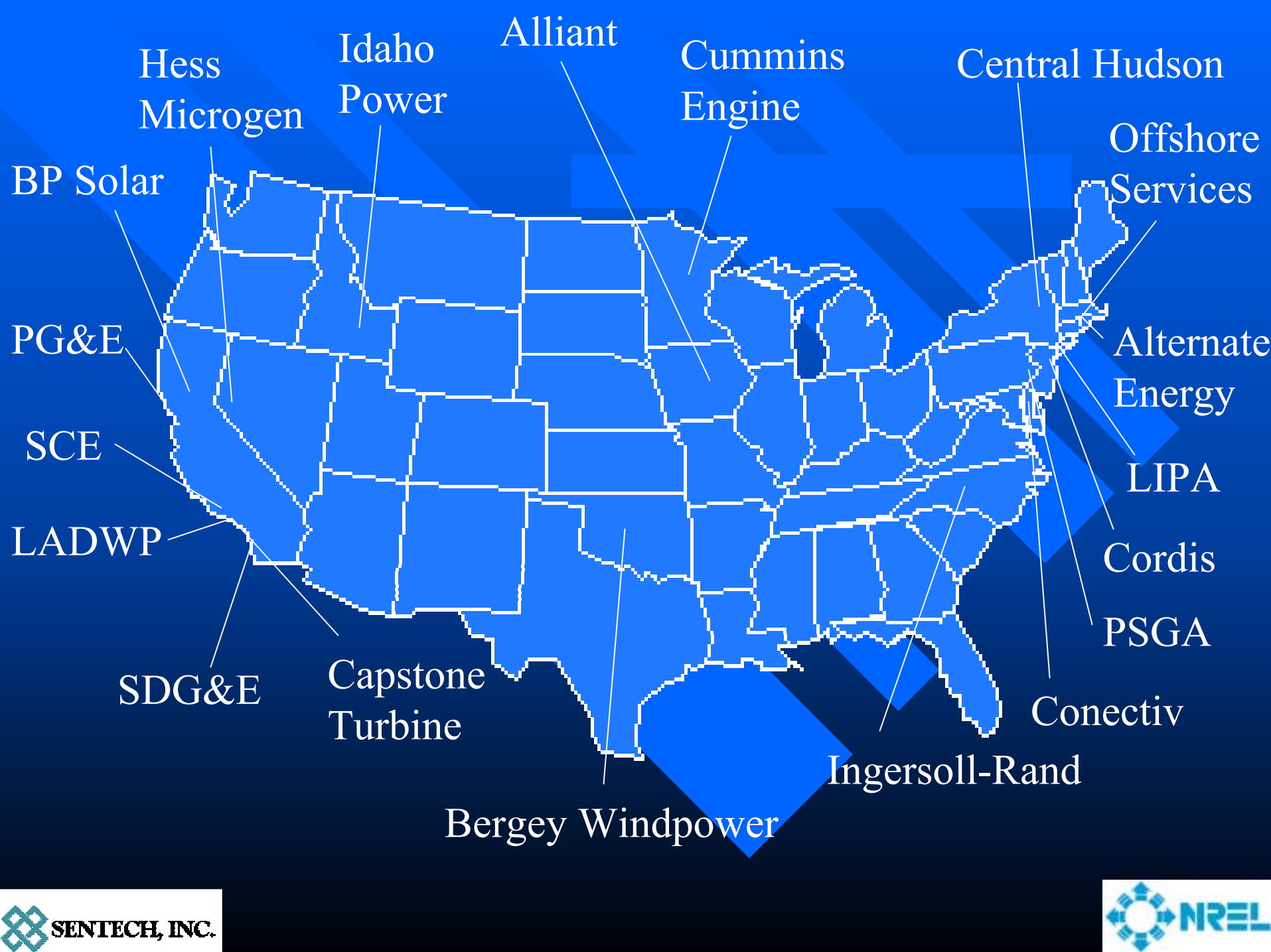
Accomplishments

- Conducted 32 interviews from August to November of 2002
- Produced a draft report detailing 20 interviews presented as case studies along with analysis of major interconnection issues



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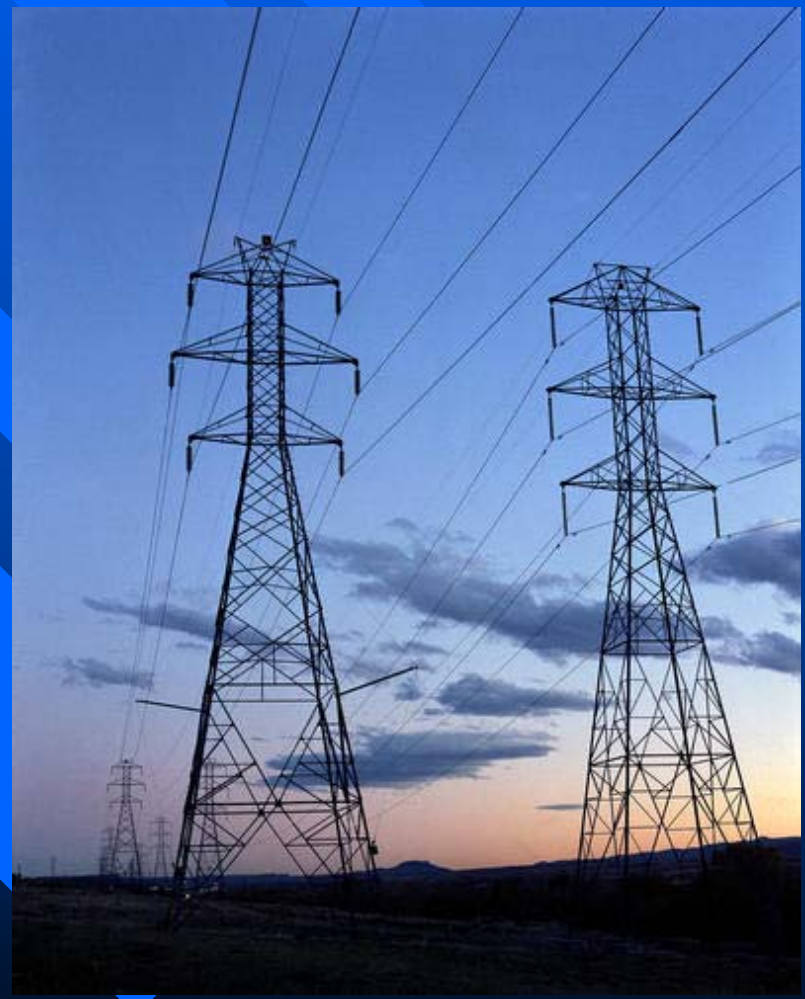
Findings: Electricity Supplier Concerns

- DER will not island and cause safety concerns or system issues
- Pre-certification of power electronics is not comprehensive – cannot ensure product will meet the demands of the variability of the grid
- Consumers and DER manufacturers lack understanding of the impact of DER on the utility's electric system



Findings: DER Manufacturer/ Customer/Integrator Concerns

- Overly restrictive interconnection standards based on laboratory testing rather than real world situations
- DER is held to a higher power quality standard than the grid or other generators
- Lack of knowledge of DER issues among utility personnel impacts interconnection
- Non-technical issues, including tariffs, charges and other fees, are a major barrier

Findings: Overall Themes

- The primary concern of utilities is safety and system protection
- Interconnection requirements are viewed as unjustified and anti-competitive
- IEEE 1547 is a piece to the puzzle, but not the entire solution
- Educating stakeholders regarding the impact and abilities of DER technologies is a common goal among utilities and customers/manufacturers
- Guidelines are necessary but not sufficient: dialogue and/or negotiation is critical to accomplish DER interconnection

Recommendations

- The primary concern of utilities is safety and system protection

  Conduct a comprehensive, statistically significant survey of utilities to catalogue actual safety or reliability issues encountered with DER

- Interconnection requirements are viewed as unjustified and anti-competitive

  Involve all stakeholders in developing standards to reduce the perception that standards are biased

Recommendations

- IEEE 1547 is a piece to the puzzle, but not the entire solution

Continue development of IEEE 1547 standard as part of a broader interconnection strategy

- Educating stakeholders regarding the impact and abilities of DER technologies is a common goal among utilities and customers/manufacturers

Develop a comprehensive interconnection plan to educate stakeholders and end misperceptions regarding DER